



Food-borne Outbreak Investigation

Revised 12/21/2004

Introduction

Foodborne illness in the United States is a major cause of personal distress, social disruption, preventable death and avoidable economic burden. The economic impact of illness is staggering since the unpleasant symptoms of even a mild case of foodborne illness may require absence from school or work. The microbiologic hazards associated with food and food preparation are receiving increasing public attention. They are causing increasing concern not only among consumers, but also among those involved in all facets of food production and distribution. While benefits of the availability of such a variety of foods are many, the potential for transmission of foodborne pathogens to large populations spread over large geographic areas also increases with modern food production and distribution.

Changing food industry practices, dietary choices of the American people and increasing global distribution of food supplies bring new challenges to providing a diet safe from pathogens. Commonly consumed food items contaminated with infectious agents place large numbers of persons at risk. In addition to the dangers inherent in the modern food distribution system, newly emerging or reemerging infectious diseases influence and complicate the occurrence of foodborne illness. Transmission of a new pathogen may be poorly understood and laboratory methods for diagnosis may be difficult or unavailable.

Definitions

Complaints by citizens of symptoms that they feel are caused by food are common. These complaints often involve only one or two related people and cannot be shown to be food-related.

A suspected foodborne disease outbreak is a clustering of people (two or more unrelated persons) with onset of similar objective symptoms (for example, vomiting or diarrhea) within a 48-hour period after eating a common food or eating at a common restaurant/gathering. Most single source food borne outbreak will meet this definition, however continuous source outbreak or outbreak involving diseases with long incubation period (hepatitis A for example) do not meet this definition.

A probable foodborne disease outbreak includes in addition a strong association ($OR > 1.5$) between some of the food and the illness.

A confirmed foodborne disease outbreak includes isolation of identical microorganisms both in the food and in clinical specimens.

A food-related complaint is defined as a report by persons of symptoms which they believe are

related to a food source, but which does not fit the definition of a foodborne disease outbreak. Food-related complaints either occur over more than 48 hours, involve only one person, involve only people from one household, or are characterized only by subjective symptoms (such as nausea, headache, or dizziness).

A Food establishment complaint is a complaint related to food such as the sale of spoiled or adulterated food or unsanitary conditions at a restaurant. It is important to track consumer complaints and review the data periodically for clusters of illness or changes in trends of illness.

Response to a suspected food-borne outbreak

Public Health Response Teams

When a potential outbreak situation occurs, the first person involved should ensure that all the stakeholders are informed. This would include Regional Medical Director /Administrator, other regional staff (Epidemiologist, Disease Surveillance Specialist, Sanitarian) and the Infectious Disease Epidemiology Section.

All relevant information pertaining to the outbreak/condition will be discussed in order to determine the course of action. A decision will be made whether to activate the RRT.

Rapid Response Teams (RRT) are multidisciplinary groups of specially trained OPH staff who can respond promptly to emergency epidemiological outbreaks/conditions. The OPH Regional Office in partnership with the Infectious Disease Epidemiology Section supervises and directs the RRT's specific activities during an investigation or intervention.

The Infectious Disease Epidemiology Section will assign a lead epidemiologist for each investigation who will collaborate with the RRT and can outline correct protocols to follow.

The regional RRT Coordinator will coordinate the investigative tasks with the other team members and will be responsible for keeping the Regional Administrator/Medical Director informed of local activities on a daily basis.

It may not always be possible to have all three team members pulled from their regular job responsibilities and work together continually on an outbreak. Team members may not be at their home base when the investigation begins. However, there are quite a few activities that can be done away from the home base, such as designing questionnaires, making calls, faxing information, and conferencing with other team members.

At the end of the investigation a member of the RRT, regional staff or Infectious Disease Epidemiology Section (to be discussed by the team) will prepare a summary report on the activities, analysis of data and interpretation of results, recommendations.

A post-exit conference with Infectious Disease Epidemiology Section staff and RRT members may be conducted (most likely via telephone conferencing) to review the investigative process and evaluate effectiveness and appropriateness of the outbreak activities.

Upon initiation of activities, the RRT members will be provided with the appropriate project code number for charging their time.

Health Unit Staff

Whereas handling a food-related complaint is the responsibility of the sanitarian, investigation of a food-borne disease outbreak is a joint effort by the sanitarian, parish health unit nurse, Regional Office, Regional Rapid Response Team (RRT) Coordinator and staff from the Infectious Disease Epidemiology Section. Initially, a nurse or sanitarian may be the first to hear of a foodborne outbreak. In this case, the nurse or sanitarian's first responsibility is to notify the Regional staff, RRT Coordinator and the Infectious Disease Epidemiology Section of the outbreak so that the investigation can be organized. In carrying out the investigation the RRT team, in conjunction with the local sanitarian, will investigate the food-service establishment and ensure that continued food contamination does not occur. The local parish health unit nurse may need to assist and collaborate with the RRT team in obtaining stool and/or blood specimens from ill persons. Both the nurse and sanitarian may need to assist the RRT team and the Infectious Disease Epidemiology Section in completing questionnaires on ill and non-ill persons and assist in obtaining stool culture from foodhandlers.

Completion of Foodborne Case History Forms:

A foodborne case history form (see below) is a tool that is essential to any foodborne disease outbreak investigation. It is not possible to have a standard form that would apply to all foodborne disease outbreaks. However the Infectious Disease Epidemiology Section has prepared a generic case history form that can easily be adapted to a particular outbreak (call for information). Prior to officially investigating all individuals involved in the outbreak, the Infectious Disease Epidemiology Section and the RRT team coordinator will collaborate to prepare a special questionnaire or make modifications to existing questionnaires. Nonetheless, all foodborne disease outbreak questionnaires follow the same general principles. Below are guidelines for how these questionnaires are written and used:

- Demographic information is addressed in the first section, followed by exposure information and finally the disease history. This format will help with collecting exposure data in the same manner on cases and non-cases, independent as much as possible of disease status. It will also be easier to enter data information on non-cases in the computer program, since the disease information will not be applicable.

- A section containing food items from the meal(s) in question with blank spaces is listed next. It is important for the investigator to remember to enter the complete menu in the blanks before making bulk number of copies that are necessary. Line listing food items will avoid open-ended questions such as what did you eat? (This technique may well result in incomplete information being obtained, especially if the individual being questioned forgets some of the food items served or if the individual is a child.)

- There are three columns in the food history section for answers YES, NO, NOT SURE. When only YES and NO are allowed, it frequently results in blank entries that are difficult to handle in the analysis (it is always unclear whether the blank entries mean no, not sure, or data not collected).

- The section containing a list of possible symptoms should follow the food history section. Once the investigator is able to develop a case definition, he/she will need specific symptoms, well defined, with YES -NO - NOT SURE answers for the same reasons as in the above.

- Since diarrhea is the symptom used most often in establishing a case definition, there is a need to specify a standard definition for diarrhea. For the purpose of disease outbreak investigations, diarrhea shall be defined as three or more loose stools/day. Standardizing the definition for diarrhea should eliminate individual interpretations which result in conflicting information.

If the number of cases and non-cases are relatively small, it is essential to collect information contained on the food history questionnaire on all cases and all non-cases, if at all possible. If not, a way to draw a random sample of the non-cases to serve as controls will have to be designed by the Infectious Disease Epidemiology Section and should be discussed with that section early in the investigative process, before data are collected.

Depending on the suspected illness, the characteristics of the patients and the circumstances of the outbreak, other optional information might be necessary:

- date of birth
- place of employment, work phone numbers
- names/ages/disease status of household contacts (secondary cases/day care/school)
- underlying conditions, medications
- travel history
- treatment: drug/dosage/duration
- places and times of exposure, if multiple

The epidemiologic investigation should also include information on both environmental and laboratory investigations. While each part of a foodborne investigation compliments the other, team work and ongoing communication is of utmost importance.

Investigation of an outbreak is a team effort where each member has an essential role to perform. The team may include a number of individuals at the local level (public health nurse, sanitarian, laboratory, and disease investigator) as well as the Regional RRT team. It is important to remember that the RRT team and the Infectious Disease Epidemiology Section are available for guidance and assistance throughout each step of the investigation.

Submission of Clinical Specimens to the State Laboratory:

Laboratory identification of a pathogen can validate the hypothesis and allow easier implementation of control and preventive measures. Increased certainty results if the statistical association of illness is combined with the isolation of a pathogen from the ill person and the implicated food item(s). Therefore, time is of the essence when requesting and collecting clinical and food specimens. Stool specimens should be collected within 48 to 72 hours after onset of symptoms during the period of active diarrhea.

Role of the State Laboratory

The Central and Regional Laboratories are state reference laboratories where hospitals and other laboratories send specimens or isolates for confirmation and serotyping. In addition to reference laboratory activities, these laboratories examine implicated food and clinical specimens (in outbreak and non-outbreak situations) to identify the organism or extraneous materials responsible for human illness.

Feces and food specimens are considered appropriate for foodborne related-illness testing. Blood is an acceptable specimen when typhoid, botulism or other relevant microorganisms are suspected. Routine cultures performed on fecal specimens include: *Campylobacter*; *Vibrio*; *Salmonella*; *Shigella*. On request: *E. Coli* 0157:H7; *Staph aureus*; *Clostridium perfringens*; *Bacillus cereus*. The Central Laboratory can identify Norovirus on stool specimens. In special circumstances, the Centers for Disease Control and Prevention in Atlanta may be utilized for laboratory assistance in conducting viral testing on fresh stool specimens.

In 1998, a Molecular Epidemiology Laboratory has been established that is capable of performing molecular subtyping of bacterial pathogens by pulsed field gel electrophoresis (PFGE). Traditionally, epidemiologic investigations of infectious disease outbreaks have relied primarily on detailed evaluation of cases and comparison of those cases with carefully selected controls. Both differences and similarities between cases and controls are used to identify factors that may be associated with a specific illness under investigation. Laboratory isolation and identification of an etiologic agent from the suspected source provided independent confirmation of the probable source of the outbreak. When laboratory methods such as serotyping were developed to characterize bacteria below the species level, these methods were also applied to more definitively match between case isolates and isolates from suspected sources of infection.

Pulse field gel electrophoresis (PFGE) is a technique used to produce the DNA fingerprints. PFGE testing can determine how closely related bacteria are to one another by comparing their fingerprints. Identical or very similar DNA fingerprint patterns strongly suggest a close relationship, while bacteria with distinctly different patterns are not closely related.

Procedures for Stool Sample Collection and Submission

Each Regional Rapid Response Team has been provided a laboratory RRT kit containing all necessary supplies. The Regional RRT Coordinator is responsible for maintaining inventory of supplies and requesting replacements as needed.

1. Transport Media

All State Public Health Labs provide Carey-Blair transport media for stool collection for salmonella sp., Shigella sp., and Campylobacter sp.

2. Collection time of samples

Diagnosis of most foodborne diseases can be made more easily when etiologic agents are isolated from clinical specimens of ill persons. Encourage ill persons to submit stool specimens while they are still experiencing symptoms. Collect stool specimens prior to antibiotic treatment.

3. Methods of stool collection

Stools for bacteriology testing should be evitable on the collection kit swab to be considered adequate for testing. Stools submitted for viral testing should be at least a cupful of fresh stool (even if liquid) in a clean seal-proof container. Rectal swabs are not usually recommended, however, if it is the only available method, the swab should be inserted past the anal sphincter muscle to obtain a representative fecal sample. It is preferable to obtain a whole stool sample to make sure there is enough material for viral and bacterial isolation. The stools may be collected in a screw cap container or any container with a tight lid. Refrigerate the specimen immediately.

4. Transporting and Labeling

Each stool sample should be labeled with the patient's name, date of collection, and be accompanied by the appropriate laboratory requisition slip with completed information as required. Place samples in a zip lock bag to prevent spillage or leakage during transport and place lab slips in a separate plastic bag or waterproof envelope. Place these samples in a styrofoam box, insert frozen icepacks to avoid deterioration of the specimens.

5. Shipping

It is preferable that all outbreak-related specimens be shipped as quickly as possible to the receiving lab. If specimens cannot be hand carried to the laboratory, shipping by Greyhound bus is the next best method. Please be sure to indicate and label on the outside of the package, "NEXT BUS OUT" to ensure the specimens are sent on the most immediate scheduled trip.

Procedures for Food Sample Collection and Submission

Follow the same procedures as for stool samples except:

Collect a cup of food per organism to be tested. Refrigerate immediately.

Keep the food in a sturdy leak-proof container such clean and dry plastic container. If there is more than one item in the meal, keep food samples separate. Each food sample should be accompanied by a separate food request form. Pre-numbered adhesive tags are provided at the bottom of these forms, attach tags to the appropriate sample to avoid mismatching. Place these samples in a Styrofoam box with frozen icepacks. Place this box in an addressed cardboard box.

REMINDER: Key Components of Lab Collection Process

- . Timeliness of specimen collection - usually during the acute phase of illness
- . Specimen type - based on suspected disease
- . Proper handling - temperature control and follow biohazard procedures
- . Proper labeling/packaging - be sure to include patient identifiers, submitter's identification, and abide by established protocols for packaging
- . Proper modes of transportation - consider the length of time the specimen will remain viable, level/timeliness of follow-up needed, and location of specimen/laboratory
- . Common types of specimens used to identify agents: **viruses** - serology, stool, throat cultures; **bacteria** - stool, food, tissue cultures (CSF, wound); and **parasites** - stool.

Procedures for Collection of Serum Specimens

The identification of specific antigens and/or antibodies in serum is the method of choice when the acute stage of disease is past or when the agent is difficult or dangerous to isolate. Diagnosis of viral infection using serological testing must be done using both the laboratory data and clinical observations. The laboratory can provide two types of serological analysis helpful in diagnosing acute viral infection – total antibody titers on paired serum specimens or detection of virus specific IgM class antibodies. It is important that the acute or single specimen be collected as soon as possible after onset of the illness. Timely collection, careful transport and accurate analysis of a specimen are all essential to insure clinically useful test results.

Collect one tube of blood in a red/gray serum separator blood collection tube (may need to check with the laboratory if other blood tubes are to be used) for analysis as early as possible after the onset of illness. Specimens may be submitted as **separated serum** or as **whole** blood.

Specimens submitted as whole blood must comply with the following requirements:

- For each serological analysis requested, optimally draw 7 - 10 ml of blood into one gray/redtopped tube with serum separator. Allow the tube to completely fill during venipuncture; partially filled tubes limit the number of tests that the laboratory can perform and increases the number of redraws.
- Allow the whole blood to clot. It is not necessary to remove the clot or separate the serum from the clot for transport to the laboratory unless there will be a delay of several days to arrive at the lab. If a delay is expected, the serum must be separated from the clot and frozen.

- Blood should be stored at refrigerator temperature and should remain cool during transport. Blood tubes should be packed in insulated cryotube mailing containers with sufficient refrigeration packs to maintain the integrity of the specimens. The refrigerant cold packs must not come in direct contact with the blood tubes as this may cause hemolysis.
- Specimens submitted as serum must be spun down and separated from the cells. Serum or plasma must be received in the laboratory within 48 hours of collection. If more than 48 hours will elapse between spinning the blood and arrival at the laboratory, you must decant the plasma or serum into fresh cryotubes for freezing. The specimen must remain frozen for both storage and shipment.
- When submitting acute and convalescent specimens, it is better to hold the acute sera until the convalescent sera has been collected and forward both specimens to the laboratory at the same time. The acute specimen should be collected as early as possible and not later than 5 days after onset. The convalescent specimen should be collected 14 - 21 days after onset. Occasionally upon request, the acute serum may need to be sent as soon as collected if there are available methods for rapid testing on single specimens.
- Please be sure the tube is labeled with appropriate identification, such as bar-coded labels from the bar coded-lab forms, and submit the laboratory slip with complete information requested on the form. All forms accompanying specimens should be placed in a separate water-proof bag or envelope and placed outside of the specimen container.

Analysis of Foodborne Case History Forms:

In general, the Infectious Disease Epidemiology Section will be assisting the RRT Teams in analyzing the Foodborne Case History Forms to identify the specific food item that caused the outbreak.

Infectious Disease Epidemiology: Epidemiologic Response Checklist

Consultation/ Confirmation

- ☒ Discuss bioterrorism event definitions with key public health personnel (health officer, communicable disease control staff, laboratorians, etc.)

Laboratory Confirmation

- ☒ Identify point of contact (POC) at appropriate state public health laboratory in a potential bioterrorist event

Notification

- ☒ Establish local notification network to be activated in case of a possible bioterrorist event; disseminate contact information and notification protocol
- ☒ Establish relationships with local Office of Emergency Preparedness and FBI contacts to be notified in a suspected bioterrorist event and maintain up-to-date contact information

Coordination

- ☒ Establish Epidemiologic Response as a part of local Incident Command System
- ☒ Identify personnel available for epidemiologic investigation and perform inventory of skills and duties
- ☒ Establish contacts at regional and Parrish health units identify potential personnel resources available for epidemiologic “mutual aid”
- ☒ Establish contacts at the local FBI office for coordination with epidemiologic/ criminal Investigation

Communication

- ☒ Identify epidemiologic investigation spokesperson and Public Information Officer (PIO)
- ☒ Establish communication protocol to be implemented during an epidemiologic investigation between PIO and epidemiologic investigation spokesperson
- ☒ Establish a plan for rapid dissemination of information to key individuals: FAX, Email, website on the internet (if capability exists)

Epidemiologic Investigation

A. Case Finding

- ☒ Establish plans/ capacity to receive a large number of incoming telephone calls
- ☒ Develop telephone intake form
- ☒ Identify individuals available to perform telephone intake duties
- ☒ Identify potential reporting sources (persons/ facilities) to receive case definition
- ☒ Establish a plan for rapid dissemination of case definition to potential reporting sources

B. Case Interviews

- ☒ Obtain appropriate case investigation questionnaires
- ☒ Identify personnel available to conduct case interviews
- ☒ Establish a protocol for training case interviewers
- ☒ Obtain template outbreak disease-specific investigation questionnaires

C. Data Analysis

- ☒ Obtain template database for data entry
- ☒ Assure Epi Info software is installed on data entry computers
- ☒ Identify personnel available for data entry
- ☒ Identify personnel with skills to perform descriptive and analytic epidemiologic analysis
- ☒ Develop/ obtain data analysis plan
- ☒ Develop/ obtain outbreak investigation monitoring tool

Contact Tracing

- ☒ Establish a system for locating contacts and familiarize personnel with contact tracing protocol(s)
- ☒ Obtain Contact Tracing Forms
- ☒ Obtain contact management algorithms for diseases that are communicable from person-to-person
- ☒ Obtain treatment/ prophylaxis guidelines
- ☒ Develop local drug and vaccine distribution plan
- ☒ Establish a system for daily monitoring of all contacts under surveillance

Public Health Recommendations

- ☒ Obtain treatment and prophylaxis recommendations for bioterrorist threat agents
- ☒ Develop or obtain bioterrorist disease-specific fact sheets
- ☒ Establish contact with key health care providers/ facilities and establish protocol for rapid dissemination of recommendations regarding treatment, prophylaxis, personal protective equipment, infection control, and isolation/ quarantine

Consultation / Confirmation

- ☒ Disease scenario meets the bioterrorist event definition

Laboratory Confirmation

- ☒ Lab specimens are en route to the local public health laboratory/ Laboratory Response Network

Notification

- ☒ Department of Health and Human Services
State Medical Officer
(225)342-3417 (regular business hours)
(800)990-5366 pin 6710 (pager for evenings, weekends, holidays)
- ☒ State Epidemiologist (504)458-5428 Mobile
- ☒ Sanitarian Services (225)763-5553
- ☒ Public Health Lab (504)568-5371
- ☒ Public Health Lab Pager (800)538-5388
- ☒ OPH Regional Offices (Internal Notification Network)
- ☒ Louisiana EOC (225)-925-7500
- ☒ Louisiana State Police (800)469-4828 (Crisis Management Center)
- ☒ Louisiana Department of Agriculture- Office of Animal Health
State Veterinarian Office: (225)935-2168 Mobile: (225)933-8121

Coordination

- ☒ Epidemiology personnel identified for investigation
- ☒ Additional epidemiology personnel support requested (From other regions) Investigation activities coordinated with FBI

Communication

- ☒ Epidemiology investigation spokesperson identified
- ☒ Communication protocol established between epidemiologic investigation spokesperson and Public Information Officer (PIO)

Epidemiologic Investigation

- ☒ Hypothesis-generating interviews conducted
- ☒ Preliminary epidemiologic curve generated
- ☒ Case definition established

A. Case finding

- ☒ Telephone hotline established
- ☒ Telephone intake form distributed
- ☒ Case definition disseminated to potential reporting sources
 - Hospitals
 - Physicians
 - Laboratories
 - EMS
 - Coroner
 - Media

B. Case interviews

- ☒ Interviewers trained
- ☒ Uniform multi-jurisdictional outbreak investigation form(s) obtained

C. Data Analysis

- ☒ Uniform multi-jurisdictional database template for data entry obtained
- ☒ Epidemiologic curve generated
- ☒ Cases line-listed
- ☒ Case descriptive epidemiology completed
 - Age
 - Gender
 - Illness onset
 - Clinical profile
 - % Laboratory confirmed
 - Hospitalization rate
 - Case fatality rate
 - Case geographic distribution mapped (GIS mapping if available)
- ☒ Analytic epidemiology completed
 - Disease risk factors identified
 - Mode of transmission identified
 - Source of transmission identified
 - Population at continued risk identified

Contact Tracing

- ☒ Contact tracing forms distributed
- ☒ Health education materials available
- ☒ Contact management triage algorithm reviewed with staff
- ☒ Treatment/ prophylaxis guidelines available
- ☒ Treatment/ prophylaxis distribution plan in place
- ☒ System in place for locating contacts
- ☒ Tracking system in place to monitor contacts' trends/ gaps

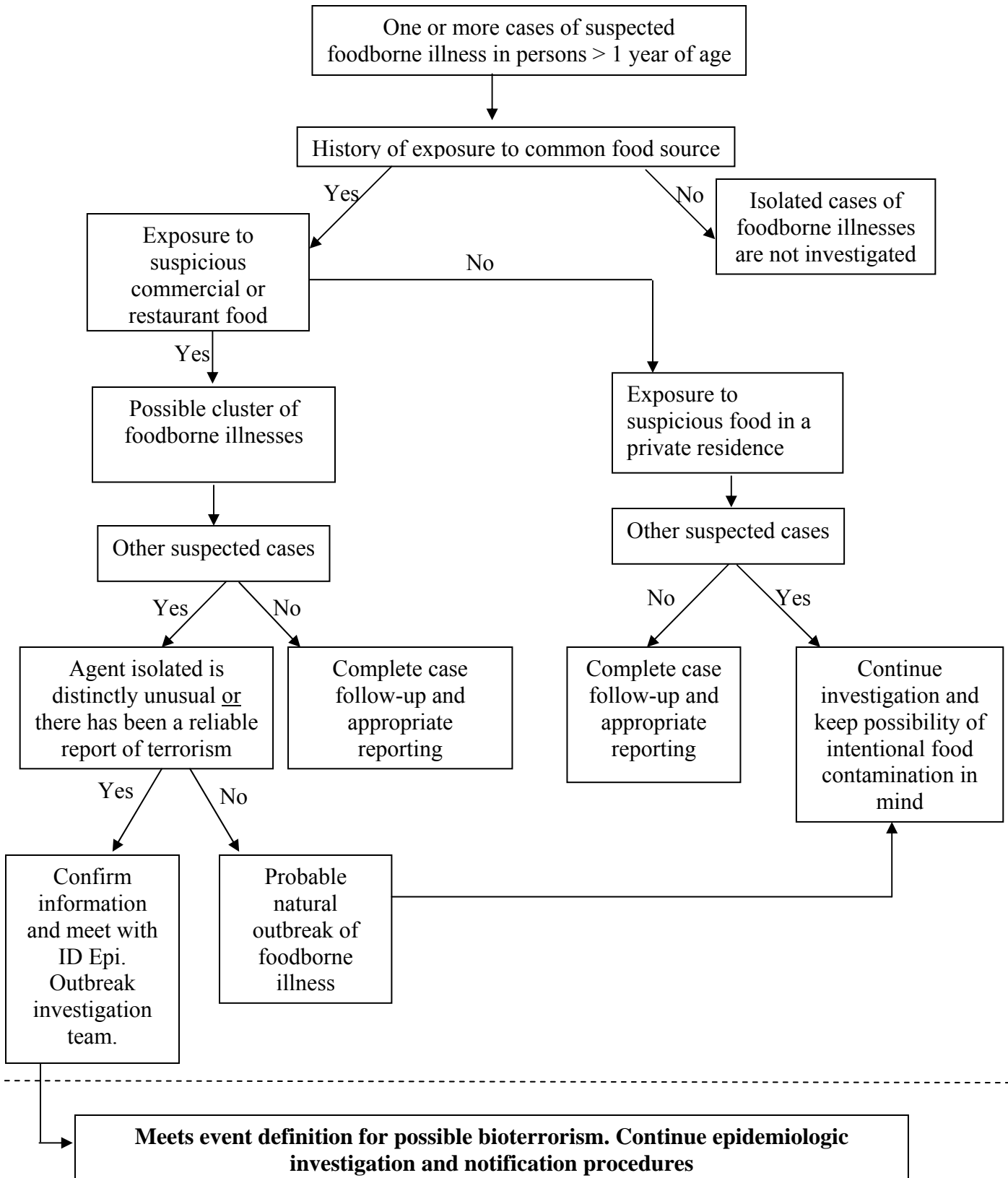
Laboratory

- ☒ Establish point of contact (POC) at appropriate Level A and/ or Level B public health laboratory to refer queries regarding specimen packaging, storage and shipping guidelines in a potential bioterrorist event [See Laboratory Section's Bioterrorism Plan]

Public Health Recommendations

- ☒ See Medical Response Section Bioterrorism Plan

Foodborne Investigation Algorithm



Foodborne Illness

Case investigation form

ID NUMBER: _____

INTERVIEWER: _____ JOB TITLE: _____

DATE OF INTERVIEW: ____/____/____

PERSON INTERVIEWED: ☐ Patient ☐ Other

IF OTHER, NAME OF PERSON _____

TELEPHONE _____ - _____ - _____

DESCRIBE RELATIONSHIP _____

DEMOGRAPHIC INFORMATION

LAST NAME: _____ FIRST NAME: _____

DRIVER LICENCE OR SOCIAL SECURITY NUMBER (Circle one): _____

SEX: ☐ Male ☐ Female DATE OF BIRTH: ____/____/____ AGE ____

RACE: ☐ White ☐ Black ☐ Asian ☐ Other, specify _____ ☐ Unknown

ETHNICITY: ☐ Hispanic ☐ Non-Hispanic ☐ Unknown

HOME PHONE: () _____ - _____ WORK/OTHER PHONE: () _____ - _____

HOME ADDRESS STREET: _____

CITY: _____ STATE: _____ ZIP: _____

EMPLOYED: ☐ Yes ☐ No ☐ Unknown

BRIEF DESCRIPTION OF JOB: _____

SCHOOL/PLACE OF EMPLOYMENT: _____

DEPARTMENT _____ FLOOR: _____ ROOM: _____

WORK/SCHOOL ADDRESS: STREET: _____ CITY: _____

STATE: _____ ZIP: _____

ARE YOU A:

LAB WORKER/TECHNICIAN: ☐ Yes ☐ No ☐ Unknown

TAXIDERMIST: ☐ Yes ☐ No ☐ Unknown

VETERINARIAN: ☐ Yes ☐ No ☐ Unknown

FARMER: ☐ Yes ☐ No ☐ Unknown

ABATTOIR: ☐ Yes ☐ No ☐ Unknown

BUTCHER: ☐ Yes ☐ No ☐ Unknown

OTHER FOOD PREPERATION: ☐ Yes ☐ No ☐ Unknown

HOBBY:

Do you work with fibers/wool/animal skin/or other animal product? ☐ Yes ☐ No ☐ Unknown

Have you been camping in past two months? ☐ Yes ☐ No ☐ Unknown

Have you stayed in cabins in the past two months? ☐ Yes ☐ No ☐ Unknown

Have you been hunting? ☐ Yes ☐ No ☐ Unknown

Have you skinned or dressed and animal? ☐ Yes ☐ No ☐ Unknown

Have you had an animal stuffed or mounted? ☐ Yes ☐ No ☐ Unknown

HOW MANY PEOPLE RESIDE IN THE SAME HOUSEHOLD? _____

LIST NAME(S), AGE(S), AND RELATIONSHIPS (use additional pages if necessary):

	PERSON 1	PERSON 2	PERSON 3	PERSON 4	PERSON 5	PERSON 6
Name						
Age						
Relationship						

HOUSEHOLD PETS:

Does your household have any pets (indoor or outdoor)? ☐ Yes ☐ No ☐ Unknown

If so what type of pet: _____

Have any of the pets been ill or died recently? ☐ Yes ☐ No ☐ Unknown

If so describe: _____

CLINICAL INFORMATION

CHIEF COMPLAINT: _____

DATE OF ILLNESS ONSET: ____/____/____

Which was experienced first? ☐ Vomiting ☐ Diarrhea

Onset time: ____:____ ☐ AM ☐ PM

Currently experiencing vomiting or diarrhea? ☐ Yes ☐ No ☐ Unknown

Willing to provide a stool sample? ☐ Yes ☐ No ☐ Unknown

Date of last day of illness with vomiting or diarrhea: ____/____/____

Time of last episode of vomiting or diarrhea: ____:____ ☐ AM ☐ PM

Total number of days of diarrhea: ____ days

Briefly summarize History of Present Illness:

SIGNS AND SYMPTOMS

Nausea	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Vomiting	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Diarrhea	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown

If yes, what is the maximum number of stools in a 24-hour period: _____

Bloody diarrhea	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Abdominal pain and cramps	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Gas	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Loss of appetite	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Fever	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown

If yes, Maximum temperature _____ °F

Antipyretics taken	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Chills	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Muscle aches	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Fatigue	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Constipation	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Weight loss	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown

If yes, how many pounds have been lost: _____ lbs in _____ days
Other Symptom or abnormality: _____

PAST MEDICAL HISTORY:

Do you have a regular physician?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
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If yes, Name: _____ Phone Number: (____) _____ - _____

Are you allergic to any medications?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
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If yes, list: _____

Are you currently taking any medication:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
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If yes, list: _____

Have you had any wound or lesion in the past several months?

	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
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If yes, where: _____ Appearance: _____

Food allergies	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
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If yes, describe: _____

Diabetes	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Malignancy	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown

If yes, specify type: _____

Currently in treatment	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Cardiac disease	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
HIV infection	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown

Other Immunocompromising condition (i.e. renal failure, cirrhosis, chronic steroid use)

	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
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If yes, specify disease or drug therapy: _____

Currently pregnant	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Colitis/inflammatory bowel disease	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Surgery to remove part of the stomach or small intestines:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown

Other immunocompromising condition (e.g., renal failure, cirrhosis, chronic steroid use)

☐ Yes ☐ No ☐ Unknown

Other underlying condition(s):

Prescription medications:

SOCIAL HISTORY:

Current alcohol abuse:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Past alcohol abuse:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Current injection drug use:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Past injection drug use:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Current smoker:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Former smoker:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Other illicit drug use:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown

If yes, specify:

HOSPITAL INFORMATION:

HOSPITALIZED: ☐ Yes ☐ No

NAME OF HOSPITAL:

DATE OF ADMISSION: ____/____/____ DATE OF DISCHARGE ____/____/____

ATTENDING PHYSICIAN: LAST NAME: _____ FIRST NAME: _____

Office Telephone: () ____ - ____ Pager: () ____ - ____ Fax: () ____ - ____

MEDICAL RECORD ABSTRACTION :

MEDICAL RECORD NUMBER:

WARD/ROOM NUMBER:

ADMISSION DIAGNOSIS(ES): 1)

2)

3)

PHYSICAL EXAM:

Admission Vital Signs:

Temp: ____ (☐ Oral / ☐ Rectal ☐ F / ☐ C) Heart Rate: _____ Resp. Rate: _____ B/P: ____/____

Mental Status: ☐ Normal ☐ Abnormal ☐ Not Noted

If abnormal, describe: _____

Respiratory status: ☐ Normal spontaneous ☐ Respiratory distress ☐ Ventilatory support

If abnormal, check all that apply:

☐ Rales

☐ Stridor/wheezin

☐ Decreased or absent

Other (specify: _____)

Skin: ☐ Normal ☐ Abnormal ☐ Not Noted

If abnormal, check all that apply:

☐ Edema

☐ Chest wall edema

☐ Cyanosis

☐ Erythema

☐ Petechiae

☐ Sloughing/necrosis

☐ Purpura

☐ Rash

If rash present, describe type and location on body : _____

Other abnormal physical findings (describe): _____

DIAGNOSTIC STUDIES:

Test	Results of tests done on Admission (___/___/___)	Abnormal test result at any time (specify date mm/dd/yyyy)
Hemoglobin (Hb)		(___/___/___)
Hematocrit (HCT)		(___/___/___)
Platelet (plt)		(___/___/___)
Total white blood cell (WBC)		(___/___/___)
WBC differential:		(___/___/___)
% granulocytes (PMNs)		(___/___/___)
% bands		(___/___/___)
% lymphocytes		(___/___/___)
Blood cultures:	<input type="checkbox"/> positive (specify _____) <input type="checkbox"/> negative <input type="checkbox"/> pending <input type="checkbox"/> not done	<input type="checkbox"/> positive (specify _____) <input type="checkbox"/> negative <input type="checkbox"/> pending <input type="checkbox"/> not done (___/___/___)
Stool cultures	<input type="checkbox"/> positive (specify _____) <input type="checkbox"/> negative <input type="checkbox"/> pending <input type="checkbox"/> not done	<input type="checkbox"/> positive (specify _____) <input type="checkbox"/> negative <input type="checkbox"/> pending <input type="checkbox"/> not done (___/___/___)
Fecal white blood cells	<input type="checkbox"/> positive (specify _____) <input type="checkbox"/> negative <input type="checkbox"/> pending <input type="checkbox"/> not done	<input type="checkbox"/> positive (specify _____) <input type="checkbox"/> negative <input type="checkbox"/> pending <input type="checkbox"/> not done (___/___/___)
Stool ova and parasite exam	<input type="checkbox"/> positive (specify _____) <input type="checkbox"/> negative <input type="checkbox"/> pending <input type="checkbox"/> not done	<input type="checkbox"/> positive (specify _____) <input type="checkbox"/> negative <input type="checkbox"/> pending <input type="checkbox"/> not done (___/___/___)

Test	Results of tests done on Admission (____/____/____)	Abnormal test result at any time (specify date mm/dd/yy)
Chest radiograph	<input type="checkbox"/> normal <input type="checkbox"/> unilateral, lobar/consolidation <input type="checkbox"/> bilateral, lobar/consolidation <input type="checkbox"/> interstitial infiltrates <input type="checkbox"/> widened mediastinum <input type="checkbox"/> pleural effusion <input type="checkbox"/> other _____	<input type="checkbox"/> normal <input type="checkbox"/> unilateral, lobar/consolidation <input type="checkbox"/> bilateral, lobar/consolidation <input type="checkbox"/> interstitial infiltrates <input type="checkbox"/> widened mediastinum <input type="checkbox"/> pleural effusion <input type="checkbox"/> other _____ (____/____/____)
Other pertinent study results		(____/____/____)
Other pertinent study results (e.g., toxin assays)		(____/____/____)

GASTRO-ENTEROLOGY CONSULTED: ☐ Yes ☐ No ☐ Unknown

Date of Exam: ____/____/____
 Name of neurologist: Last Name _____ First Name _____
 Telephone or beeper number () _____ - _____

INFECTIOUS DISEASE CONSULT: ☐ Yes ☐ No ☐ Unknown

Date of Exam: ____/____/____
 Name of ID physician: Last Name _____ First Name _____
 Telephone or beeper number () _____ - _____

HOSPITAL COURSE:

A. antibiotics: ☐ Yes ☐ No ☐ Unknown

If yes, check all that apply:

<input type="checkbox"/> Amoxicillin	<input type="checkbox"/> Cefuroxime (Ceftin)
<input type="checkbox"/> Ampicillin	<input type="checkbox"/> Ciprofloxacin (Cipro)
<input type="checkbox"/> Ampicillin and sulbactam (Unasyn)	<input type="checkbox"/> Clindamycin (Cleocin)
<input type="checkbox"/> Augmentin (amoxicillin and clavulanate)	<input type="checkbox"/> Gentamicin (Garamycin)
<input type="checkbox"/> Cefotetan (Cefotan)	<input type="checkbox"/> Levofloxacin (Levaquin)
<input type="checkbox"/> Cefoxitin (Mefoxin)	<input type="checkbox"/> Metronidazole (Flagyl)
<input type="checkbox"/> Ceftazidime (Fortaz, Tazicef, Tazidime)	<input type="checkbox"/> Piperacillin and Tazobactam (Zosyn)
<input type="checkbox"/> Ceftizoxime (Cefizox)	<input type="checkbox"/> Ticarcillin and clavulanate (timentin)
<input type="checkbox"/> Ceftriaxone (Rocephin)	<input type="checkbox"/> Trimethoprim-sulfamethoxazole (Bactrim, Cotrim, TMP/SMX)

☐ other _____

B. Did patient require intensive care: ☐ Yes ☐ No ☐ Unknown

If patient was admitted to Intensive Care Unit:

a. Length of stay in ICU, in days: _____

b. Was patient on mechanical ventilation: ☐ Yes ☐ No ☐ Unknown

WORKING OR DISCHARGE DIAGNOSIS(ES) :

- 1) _____
- 2) _____
- 3) _____

OUTCOME:

- ☐ Recovered/discharged
- ☐ Died
- ☐ Still in hospital: ☐ improving ? ☐ worsening ?

Risk Exposure Questions

The following questions pertain to the 2 week period prior to the onset of your illness/symptoms:

Occupation (provide information for all jobs/ volunteer duties)

1. Please briefly describe your job/ volunteer duties: _____

2. Does your job involve contact with the public? : ☐ Yes ☐ No

If "Yes", specify _____

3. Does anyone else at your workplace have similar symptoms?

☐ Yes ☐ No ☐ Unknown

If "Yes", name and approximate date on onset (if known) _____

Knowledge of Other Ill Persons

4. Do you know of other people with similar symptoms? : ☐ Yes ☐ No ☐ Unknown

(If Yes, please complete the following questions)

Name of ill Person	AGE	Sex	Address	Phone	Date of Onset	Relation To you	Did they seek Medical care? Where	Diagnosis

*Travel**

*Travel is defined as staying overnight (or longer) at somewhere other than the usual residence

8. Have you traveled anywhere in the last two weeks? : ☐ Yes ☐ No ☐ Unknown

Dates of Travel: ____/____/____ to ____/____/____

Method of Transportation for Travel: _____

Where Did You Stay? _____

Purpose of Travel? _____

Did You Do Any Sightseeing on your trip? : ☐ Yes ☐ No

If yes, specify: _____

Did Anyone Travel With You? : ☐ Yes ☐ No

If yes, specify: _____

Are they ill with similar symptoms? : ☐ Yes ☐ No ☐ Unknown

If yes, specify: _____

Information for Additional Trips during the past two weeks:

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Public Functions/Venues (during 2 weeks prior to symptom onset)

Category	Y/ N/ U	Description of Activity	Location of Activity	Date of Activity	Time of Activity	Others ill? (Y/N/U)
9. Airports						
10. Beaches						
11. Bars/Clubs						
12. Campgrounds						
13. Carnivals/Circus						
14. Casinos						
15. Family Planning Clinics						
16. Government Office Building						
17. Gym/Workout Facilities						
18. Meetings or Conferences						
19. Movie Theater						
20. Museums						
21. Parks						
22. Parties (including Raves, Prom, etc)						
23. Performing Arts (ie Concert, Theater, Opera)						
24. Picnics						
25. Political Events (including Marches)						
26. Religious Gatherings						
27. Shopping Malls						
28. Sporting Event						
29. Street Festivals, Flea Markets, Parades						
30. Tourist Attractions (ie						

French Quarter, Aquarium)						
---------------------------	--	--	--	--	--	--

Transportation

Have you used the following types of transportation in the 2 weeks prior to onset?

31. Bus/Streetcar: ☐ Yes ☐ No ☐ Unknown

Frequency of this type of transportation: ☐ Daily ☐ Weekly ☐ Occasionally ☐ Rarely

Bus Number: _____ Origin: _____

Any connections? ☐ Yes ☐ No (Specify: Location _____ Bus# _____)

Company Providing Transportation: _____ Destination: _____

32. Train: ☐ Yes ☐ No ☐ Unknown

Frequency of this type of transportation: ☐ Daily ☐ Weekly ☐ Occasionally ☐ Rarely

Route Number: _____ Origin: _____

Any connections? ☐ Yes ☐ No (Specify: Location _____ Route # _____)

Company Providing Transportation: _____ Destination: _____

33. Airplane: ☐ Yes ☐ No ☐ Unknown

Frequency of this type of transportation: ☐ Daily ☐ Weekly ☐ Occasionally ☐ Rarely

Flight Number: _____ Origin: _____

Any connections? ☐ Yes ☐ No (Specify: Location _____ Flight # _____)

Company Providing Transportation: _____ Destination: _____

34. Ship/Boat/Ferry: ☐ Yes ☐ No ☐ Unknown

Frequency of this type of transportation: ☐ Daily ☐ Weekly ☐ Occasionally ☐ Rarely

Ferry Number: _____ Origin: _____

Any connections? ☐ Yes ☐ No (Specify: Location _____ Ferry # _____)

Company Providing Transportation: _____ Destination: _____

35. Van Pool/Shuttle: ☐ Yes ☐ No ☐ Unknown

Frequency of this type of transportation: ☐ Daily ☐ Weekly ☐ Occasionally ☐ Rarely

Route Number: _____ Origin: _____

Any connections? ☐ Yes ☐ No (Specify: Location _____ Route # _____)

Company Providing Transportation: _____ Destination: _____

Food & Beverage

36. During the 2 weeks before your illness, did you eat at any of the following *food establishments or private gatherings with food or beverages*?

Food Establishment	Y/ N/ U	Name of Establishment	Location of Meal	Date of Meal	Time of Meal (start, end)	Food and Drink items consumed	Others ill? (Y/N/U)
Cafeteria at School, hospital, or other							
Casino or mall food court							
Grocery Store or Corner Store							
Concert, movie, or other entertainment							
Dinner party, birthday party or other celebration							
Gas station or convenience store							
Plane, boat, train, or other							
Picnic, Barbecue, Crawfish boil, or potluck							
Outdoor farmers market, festival, or swap meet							
Restaurant, fast-food, or deli							
Sporting event or snack bar							
Street vended food							
Other food establishment							
Other Private Gathering							

37. During the 2 weeks before your illness, did you consume any free *food samples* from.....?

Grocery store ☐ Yes ☐ No ☐ Unknown

Race/competition ☐ Yes ☐ No ☐ Unknown

Public gathering? ☐ Yes ☐ No ☐ Unknown

Private gathering? ☐ Yes ☐ No ☐ Unknown

If "YES" for any in question #37, provide date, time, location and list of food items consumed:

Date/Time: _____

Location (Name and Address): _____

Food/drink consumed: _____

Others also ill? ☐ Yes ☐ No ☐ Unknown

(explain): _____

38. During the 2 weeks before your illness, did you consume any of the following **products**?

Vitamins ☐ Yes . ☐ No ☐ Unknown

Specify (Include Brand Name): _____

Herbal remedies ☐ Yes . ☐ No ☐ Unknown

Specify (Include Brand Name): _____

Diet Aids ☐ Yes . ☐ No ☐ Unknown

Specify (Include Brand Name): _____

Nutritional Supplements ☐ Yes . ☐ No ☐ Unknown

Specify (Include Brand Name): _____

Other Ingested non-food ☐ Yes . ☐ No ☐ Unknown

Specify (Include Brand Name): _____

39. During the 2 weeks before your illness, did you consume any unpasteurized products (ie milk, cheese, fruit juices)? ☐ Yes . ☐ No ☐ Unknown

If yes, specify name of item: _____

Date/Time: _____

Location (Name and Address): _____

Others also ill? ☐ Yes . ☐ No ☐ Unknown

(explain): _____

40. During the 2 weeks before your illness, did you purchase food from any internet grocers?

☐ Yes . ☐ No ☐ Unknown

If yes, specify date / time of delivery: _____ Store/Site: _____

Items purchased: _____

41. During the 2 weeks before your illness, did you purchase any mail order food? ☐ Yes . ☐ No

☐ Unknown

If yes, specify date/time of delivery: _____

Store purchased from: _____

Items purchased: _____

42. Please check the routine sources for drinking water (check all that apply):

☐ Community or Municipal

☐ Well (shared)

☐ Well (private family)

☐ Bottled water (Specify Brand: _____)

☐ Other (Specify: _____)

Aerosolized water

43. During the 2 weeks prior to illness, did you consume water from any of the following sources (check all that apply):

- ☐ Wells
- ☐ Lakes
- ☐ Streams
- ☐ Springs
- ☐ Ponds
- ☐ Creeks
- ☐ Rivers
- ☐ Sewage-contaminated water
- ☐ Street-vended beverages (Made with water or ice and sold by street vendors)
- ☐ Ice prepared w/ unfiltered water (Made with water that is not from a municipal water supply or that is not bottled or boiled)
- ☐ Unpasteurized milk
- ☐ Other (Specify: _____)

If "YES" for any in question #43, provide date, time, location and type of water consumed:

Date/Time: _____

Location (Name and Address): _____

Type of water consumed: _____

Others also ill?: ☐ Yes ☐ No ☐ Unknown

(explain): _____

44. During the 2 weeks prior to illness, did you engage in any of the following recreational activities (check all that apply):

- ☐ Swimming in public pools (e.g., community, municipal, hotel, motel, club, etc)
- ☐ Swimming in kiddie/wading pools
- ☐ Swimming in sewage-contaminated water
- ☐ Swimming in fresh water, lakes, ponds, creeks, rivers, springs, sea, ocean, bay (please circle)
- ☐ Wave pools
- ☐ Water parks
- ☐ Waterslides
- ☐ Surfing
- ☐ Rafting
- ☐ Boating
- ☐ Hot tubs (non-private)
- ☐ Whirlpools (non-private)
- ☐ Jacuzzis (non-private)
- ☐ Other (Specify: _____)

If "YES" for any in question #44, provide date, time, location and type of activity:

Date/Time: _____

Location (Name and Address): _____

Type of water consumed: _____

Others also ill?: ☐ Yes ☐ No ☐ Unknown

(explain): _____

45. During the 2 weeks prior to illness, were you exposed to aerosolized water from any of the following non-private (i.e., used in hospitals, malls, etc) sources (check all that apply):

- ☐ Air conditioning at public places
- ☐ Respiratory devices
- ☐ Vaporizers
- ☐ Humidifiers
- ☐ Misters
- ☐ Whirlpool spas
- ☐ Hot tub
- ☐ Spa baths
- ☐ Creek and ponds
- ☐ Decorative fountains
- ☐ Other (please explain) _____

If "YES" for any in question #45, provide date, time, and location of exposure to aerosolized water:

Date/Time: _____

Location (Name and Address): _____

Explanation of aerosolized water: _____

Others also ill: ☐ Yes ☐ No ☐ Unknown

(explain): _____

Recreation (Activities that are not related to work)

46. In the past two weeks, did you participate in any outdoor activities?

☐ Yes ☐ No ☐ Unknown

(If "yes", list all activities and provide locations)

47. Do you recall any insect or tick bites during these outdoor activities?

☐ Yes ☐ No ☐ Unknown

(If "yes", list all activities and provide locations of activities)

48. Did you participate in other indoor recreational activities (i.e. clubs, crafts, etc that did not occur in a private home)?

☐ Yes ☐ No ☐ Unknown

(List all activities and provide location)

Vectors

49. Do you recall any insect or tick bites in the last 2 weeks?

☐ Yes ☐ No ☐ Unknown

Date(s) of bite(s): _____ Bitten by: ☐ Mosquito

☐ Tick ☐ Flea ☐ Fly ☐ Other:

Where were you when you were bitten? _____

50. Have you had any contact with wild or domestic animals, including pets?

☐ Yes ☐ No ☐ Unknown

Type of Animal: _____

Explain nature of contact: _____

Is / was the animal ill recently: ☐ Yes ☐ No ☐ Unknown

If yes please describe the animal's symptoms:

Date / Time of contact: _____

Location of contact: _____

51. To your knowledge, have you been exposed to rodents/rodent droppings in the last 2 weeks?

☐ Yes ☐ No ☐ Unknown

If yes, explain type of exposure: _____

Date/Time of exposure: _____

Location where exposure occurred: _____

